

Claims

1. Piston engine (1), in particular an axial piston engine or radial piston engine, with a housing (2) in which a
5 shaft (19) is rotatably mounted in two pivot bearings (25, 26) of which at least one pivot bearing has an inner ring (26a) which is seated, without radial clearance of motion, on a supporting region (28) of a bearing section (19c) of said shaft (19),
10 characterised in that
the axial length of the supporting region (19) corresponds to a central region (a) of the bearing section (19c) and, at the two outer regions (b, c), a radial clearance of motion is disposed between said outer regions (b, c) and
15 the inner ring (26a).
2. Piston engine according to claim 1,
characterised in that
the bearing section (19c) has a greater diameter in the
20 central region (a) than in its outer regions (b, c).
3. Piston engine according to claim 1,
characterised in that
the inner ring (26a) has a smaller diameter in its central
25 region (a) than in its outer regions (b, c).
4. Piston engine according to one of the preceding claims,
characterised in that
the central region (a) amounts to about $1/2$ to $1/4$, and in
30 particular to about $1/3$, of the length (L) of the bearing section (19c).
5. Piston engine according to one of the preceding claims,
characterised in that

the central region (a) is of cylindrical construction.

6. Piston engine according to one of the preceding claims, characterised in that

5 the outer regions (b, c) are shaped in a manner converging towards their edges that face away from the central regions (a) and, in particular, are narrowed in a step-shaped manner.

10 7. Piston engine according to claim 6, characterised in that

the outer regions (b, c) are narrowed in a cylindrical manner.

15 8. Piston engine according to one of the preceding claims, characterised in that

the housing (2) has a pot-shaped housing part and a cover (2d), the pivot bearing (26) constructed in accordance with the invention being disposed in said cover (2d).

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9. Piston engine according to claim 8, characterised in that

the pivot bearing (26) according to the invention is a plain bearing or a rolling bearing, in particular a needle
25 bearing.

10. Shaft (19) for a piston engine, in particular an axial piston engine or radial piston engine, with a housing (2) in which said shaft (19) is rotatably mounted in two pivot
30 bearings (25, 26) of which at least one pivot bearing (26) has an inner ring (26a) which is seated, without radial clearance of motion, on a supporting region (28) of a bearing section (19c) of said shaft (19), characterised in that

the axial length of the supporting region (28) corresponds to a central region (a) of the bearing section (19c) and said bearing section (19c) has a greater diameter in the central region (a) than in its outer regions (b, c).

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11. Shaft according to claim 10,
characterised in that
the central region (a) amounts to about $1/2$ to $1/4$, and in particular to about $1/3$, of the length (L) of the bearing
10 section (19c).

12. Shaft according to claim 11,
characterised in that
the central region (a) is of cylindrical construction.

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13. Shaft according to one of the preceding claims 10 to 12,
characterised in that
the outer regions (b, c) are shaped in a manner converging
20 towards their edges that face away from the central regions (a) and, in particular, are narrowed in a step-shaped manner.

14. Shaft according to claim 13,
25 characterised in that
the outer regions (b, c) are narrowed in a cylindrical manner.

15. Rolling bearing for a piston engine, in particular an
30 axial piston engine or radial piston engine, with a housing (2) in which a shaft (19) is rotatably mounted in two pivot bearings (25, 26) of which at least one pivot bearing (26) has an inner ring (26a) which is seated without radial

clearance of motion in a supporting region (28) on the bearing section (19c) of said shaft (19), characterised in that the axial length of the supporting region (28) corresponds to a central region (a) of the inner ring (26a) and said inner ring (26a) has a smaller diameter in its central region (a) than in its outer regions (b, c).

16. Rolling bearing according to claim 15, characterised in that the central region (a) amounts to about $1/2$ to $1/4$, and in particular to about $1/3$, of the length (L) of the inner ring (26a).

17. Rolling bearing according to claim 15 or 16, characterised in that the central region (a) is of hollow-cylindrical construction.

18. Rolling bearing according to one of claims 15 to 17, characterised in that the outer regions (b, c) are shaped in a manner diverging towards their edges that face away from the central regions (a) and, in particular, are widened in a step-shaped manner.

19. Rolling bearing according to claim 18, characterised in that the outer regions (b, c) are widened in a hollow-cylindrical manner.

20. Rolling bearing according to one of the preceding claims 15 to 19,

characterised in that
said bearing is a needle bearing.